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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,390	08/04/2006	Shahram Mihan	LU 6161 (US)	8381
24114	7590	02/03/2009	EXAMINER	
LyondellBasell Industries 3801 WEST CHESTER PIKE NEWTOWN SQUARE, PA 19073			NGUYEN, COLETTE B	
			ART UNIT	PAPER NUMBER
			1793	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,390	Applicant(s) MIHAN ET AL.	
	Examiner COLETTE NGUYEN	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. 60/556,272.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the application

Claims 1, 13 and 18 have been amended and claims 20-42 canceled. Claims 1-19 are presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-19** are rejected under 35 U.S.C. 102(b) as being anticipated by Denton et al. (6,329,315). Denton teaches a method of making agglomerated supports, especially olefin polymerization catalyst supports with a median particle size in the range of 0.05 to about 3 microns. The process is a hydrogel process with milling step, slurry mixing and spray drying (Col 8, ln 18-55)). Denton's teaching encompasses the process steps of the claims (Col .8, 9).

3. **Regarding claims 1, 15, 18.** Denton teaches Silica hydrogel process for a support catalyst used in olefin polymerization, with either dry milling or optionally wet milling before spray drying. The goal of the milling procedure is to provide the inorganic oxides the optimum distribution span of the particles sizes, typically from 0.5 to about 3.0

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microns, preferably from about 4 to 7 microns (Col 9, line 62-67). The process steps and the support catalysts size range overlap the claims therefore anticipated by Denton.

1. Denton discloses the particle size Distribution span per equation 1 (Col 10, ln,5), wherein D_{10} , D_{50} , D_{90} represented the 10th, 50th, and 90th percentile, respectively of the particle size (Diameter) distribution, i.e. a D_{90} of 100 microns means that 90 volume % of the particle have diameter less than or equal to 100 microns. And, per table 1, col 24, the PSD (Particle Size distribution) D_{10} is 2.6 micron (the claim is at least 5% by volume has a range of $> 0 \mu\text{m}$ to $\leq 3 \mu\text{m}$), D_{50} is 5.6 micron (the claim is at least 40% by volume has a range on $> 0 \mu\text{m}$ to $\leq 12 \mu\text{m}$) and D_{90} is 9.5 micron (the claim is at 75% by volume has a range of $> 0 \mu\text{m}$ to $\leq 35 \mu\text{m}$). The volume ranges are overlapped therefore anticipated.

4. Regarding claims 2, 4. Denton teaches "*the most preferred supports contain at least 95% by weight, silica gel, based on the weight of the catalyst support*" (Col. 6, line 32). He further teaches that "*the average particle size of the powder be located toward the low end of the 3-10 micron rangeBy controlling the average particle size in this fashion, one increases the probability that the compressive forces exerted on the constituent particles during spray drying will be high enough to cause them to adhere.*" (col. 10, line 45-53). He does not use "by volume", however he does encompass the claims by using "by weight" instead. As the weight ranges disclosed by Denton are overlapped with the volume ranges of the claims, they are anticipated.

5. Regarding claim 3. . Denton teaches a 15-25% by weight of the particles are oxides (Col. 11, line 5) with further limiting to 10-20% (Claim 14). The claims range is

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0-25% by weight with further limiting to 9-12%. The ranges overlap therefore anticipated.

6. Regarding claim 5. Denton teaches a distribution span to the particles in the slurry to be spray dried from 0.5 to about 3.0 and preferably from about 0.5 to about 2.0 microns. The teaching encompasses the claims of 0-2.8 microns (Col 9, line 67, Col.10, ln 1).

7. Regarding claim 6. Denton teaches inorganic hydroxides, oxides and/or salts such as SiO₂, Al₂O₃, MgO, AlPO₄, TiO₂, ZrO₂, or 2O₃, and mixture thereof (Col 6, line 4). Same as the instant claims.

8. Regarding claim 7. Since the claims can have a zero percent of the oxides. These claims are not considered. Furthermore, Denton does mention that "if the inorganic oxides are not susceptible to gel formation, the free oxide can be mixed from other conventional techniques such as precipitation, or just admixing directly for the milling procedure after washing. (Col 8, line 28) .

9. Regarding claim 8. As an option of wet milling, Denton teaches to use 4-40% by weight of the solid of Al₂O₃ or AlPO₄, same aluminum oxides as AlOOH at 1-30% as claimed. The same aluminum oxides as claimed and the range overlaps therefore encompassed by Denton's teachings. (Col 16, line 40-49).

10. Regarding claim 9. Denton teaches a support catalyst wherein alkaline earth metals of Group IIA, and VIA can be added in "slight proportions" with the silica hydrogel particles prior to milling. Ca(OH)₂ and Mg(OH)₂ added at 1%-4% . The claim

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limitation is the same as Denton has mentioned in the patent 6,329,315. (Col.8, ln.15-19)

11. Regarding claim 10. Denton also teaches "*Accordingly, in addition to those powders or particles having catalytic properties, there may be added materials which possess absorbent properties...*"

(Col9, line 30). Hydroxyl methyl cellulose is a hydrophobic product possessed absorbent properties well known in the art. Denton's teaching encompasses the claims.

12. Regarding claim 11. Denton teaches a range of 4-20% of solid contents in the slurry before spray drying. The teaching encompasses the claimed ranges of less than 20%, with further limiting to 8-10%...(co110, line17)

13. Regarding claim12. Denton also teaches spray drying (Col 6, ln 59)

14. Regarding claim 13. Denton teaches that" *...the spray dried product is characterized in that typically at least 80, preferably at least 90, and most preferably at least 95 volume % at that fraction of the support agglomerate particle size distribution possesses microspheroidal shape*" i.e. 0.5-3.0 microns in this instant. This is the same as the claim "of 5% by volume of the support particles obtained after drying have a particle size in the ranger of 0-25 microns (Co1.12, line 41).

15. Regarding claim 14. Denton teaches a mean particle size of the agglomerates of 20-120 microns. The teaching encompasses the instant claims (Col.15, line 2).

16. Regarding claim 16. Denton teaches a high Silicon content of 15-40% (Col.8, line 50).

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17. Regarding claim 17. Denton teaches a support with at least 80% by weight is the inorganic oxides such as aluminum content as the instant claims (see claim 8).

18. Regarding claim 19. Denton teaches the catalyst for olefin polymerization. (Col 19, line 20).

Response to Arguments

2. Applicant's arguments filed on 11/10/08 have been fully considered but they are not persuasive. Denton discloses the particle size Distribution span per equation 1 (Col 10, ln,5), wherein D_{10} , D_{50} , D_{90} represented the 10th, 50th, and 90th percentile, respectively of the particle size (Diameter) distribution, i.e. a D_{90} of 100 microns means that 90 volume % of the particle have diameter less than or equal to 100 microns. And, per table 1, col 24, the PSD (Particle Size distribution) D_{10} is 2.6 micron (the claim is at least 5% by volume has a range of $> 0 \mu\text{m}$ to $\leq 3 \mu\text{m}$), D_{50} is 5.6 micron (the claim is at least 40% by volume has a range on $> 0 \mu\text{m}$ to $\leq 12 \mu\text{m}$) and D_{90} is 9.5 micron (the claim is at 75% by volume has a range of $> 0 \mu\text{m}$ to $\leq 35 \mu\text{m}$). The volume ranges are overlapped therefore anticipated.

Conclusion

3 THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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/COLETTE NGUYEN/
Examiner, Art Unit 1793

CN
February 1, 2009

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793